

FISHLIFE

Part 2 in a series about inshore fish of Hawaii. The 12-part series is a project of the **Hawaii Fisheries Local Action Strategy**.

HAREM LIFESTYLE MAKES UHU VULNERABLE TO OVERFISHING

BY SCOTT RADWAY



Photo: Kathrine Howard

UHU IS A SORT OF LADIES' MAN ON THE REEF.

In Hawaii, a male uhu, or parrotfish, can have a group of up to a dozen females that he partners for spawning, says Kathrine Howard, a marine biologist with the University of Hawaii.

"Uhu live in harems," says Howard.

For any diver, it's fairly easy to observe, particularly among the Redlip parrotfish, the most sought after uhu by fishermen. The larger number of uhu you find on the reef around the Hawaiian Islands are reddish brown and female. The larger, bluish-green uhu are males.

And as in the case of people, that ladies' man lifestyle of the male uhu can make it a magnet for trouble. People typically target the larger fish for food and that means we are often picking off the male uhu and as a result, upsetting the spawning cycle, especially if the male is fished repeatedly.

Most uhu begin their adult life, or initial phase, as females with the ability to later in life, as they grow bigger, change sex. What can happen when males are fished heavily is the females prematurely change sex to males and as result, harems can become less and less productive at spawning.

That vulnerability is likely part of why fishermen have reported that the number and sizes of uhu around

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Photo: NOAA

NAME **UHU**



The most sought-after uhu by Hawaii fishermen are the Redlip parrotfish, Spectacled parrotfish and the Stareye parrotfish. Here are some uhu fun facts.

- ◆ Uhu get their English name parrotfish from their bright colors and beak-like mouth.
- ◆ There are seven kinds of uhu in Hawaii, three are found nowhere else in the world.
- ◆ Uhu in Hawaii range from maximum sizes of 12 inches to 28 inches. Traditionally, reports say uhu weighed up to 20 pounds. Today, big uhu come in around 12 pounds.
- ◆ Uhu generally spawn in harems of one male to a dozen females with peak spawning months between May through July.

Source: University of Hawaii

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Uhu, or parrotfish, breed in a harems, with one male to 10 to 12 females. So what happens to the harem if you catch that one male?

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the Main Hawaiian Islands have decreased over the years. In fact, comparisons of uhu in the Northwestern Hawaiian Islands and the MHI show a dramatic difference in both numbers and size. For example, for spectacled parrotfish, comparable surveys found only 29 spectacled parrotfish, averaging about 7 inches in the MHI and 600 in the NWHI, averaging 12 inches.

Jarad Makaiau, of the Western Pacific Regional Fisheries Management Council, says one thing

fisherman can do to help is not target those larger males. "In other words, it's beneficial not to shoot the blue ones," he says, adding that allowing the smaller ones to reach sexual maturation can also help boost uhu populations.

Another key characteristic of uhu that adds to its vulnerability is that they sleep at night. With the advent of modern gear (including flashlights) the fish, often found unmoving in rock crevices, is easy to

pick off by night divers, particularly those using SCUBA. Local populations can be hammered in one night.

What makes uhu's story so concerning to scientists is the important role the fish plays in maintaining the overall health of Hawaii's reefs. Uhu perform two critical tasks. First, uhu act as the lawnmowers on the reef, feeding upon algae that if left untended can outcompete and smother coral. If the coral is less abundant, everything that depends on the coral is reduced.

Second, uhu break down dead coral and produce sand. And sand is not just for beaches, it creates habitat for such things as crabs and shrimp that fish eat and also provides area for new coral. Ling Ong, who did her PhD at UH on the sand production of uhu, found that one 18-inch uhu can produce 700 pounds a year. At the same time, only 66 pounds are produced by a 12-inch fish.

For her part, Howard and others are attempting to collect as much information about uhu as possible to better manage the fishery. Uhu has been studied elsewhere but Hawaii is only beginning to get a handle on this fish group, she says. In fact, Howard and a team of UH scientists recently completed the first definitive study of uhu.

In the study, Howard and the team found patchy representation of parrotfish around Oahu. The team also dissected upwards of a 1,000 uhu to get a better understanding of exactly what age they become sexually reproductive and when they reproduce. On spawning, Howard says the team found that uhu peak times to reproduce are late Spring or early Summer, though the older fish can reproduce year-round and produce larger numbers.

Makaiau says information such as spawning times can potentially be used as another tool to boost numbers. Native Hawaiians, as did other Pacific Island cultures, typically were very mindful not to fish certain species during peak spawning to ensure the populations reproduced.

"The more aware we are of how they behave the better all of us are at being conservationists," Makaiau says.



Photo: Steve Spring-Reef Rescue/Marine Photobank

THE LANDSCAPERS:
Uhu play a critical role on the reef by eating algae that can outcompete and smother coral. And the bigger the fish gets, the better it is at rooting out algae.

TELLTALE FISH



Uhu was historically a favorite fish for Native Hawaiians. According to Margaret Titcomb's book, "**Native Use of Fish in Hawaii**," it was often eaten raw, and it was preferred to eat it with pieces of the fish's liver. The prominence of uhu in Hawaiian legends is evidence of their cultural importance.

In addition, Uhu, Titcomb writes, were also the telltale fish in ancient times. If watched, the uhu would reveal what kind of activity was taking place at home while he fished. If the uhu was frolicking, the fisherman knew his wife was not displaying the proper sober demeanor his absence at sea required. If two uhu were rubbing noses, it was a sure sign that flirting was going on at home. That meant fishing was instantly cut short.



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